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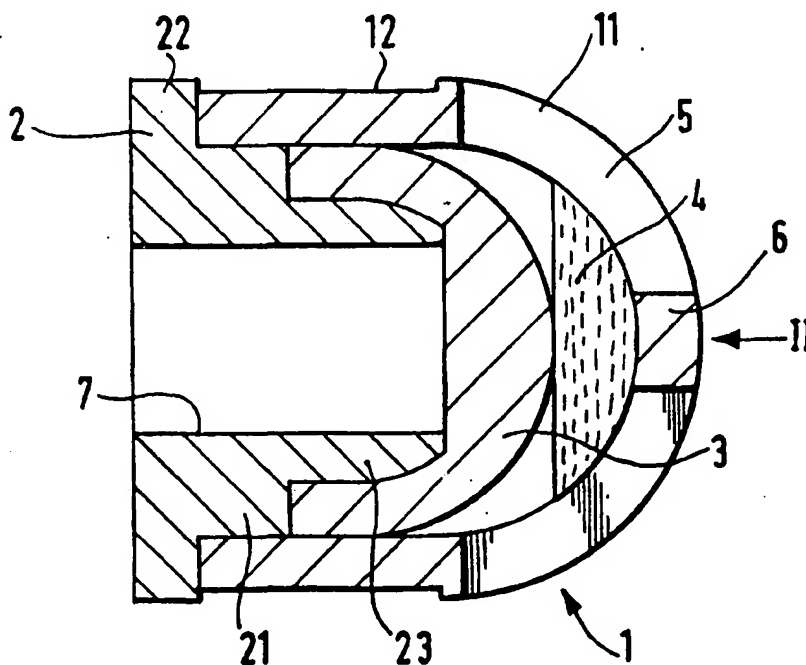
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(54) Title: TARGET MARKING BULLET



(57) Abstract

A projectile has a hollow casing (1, 2) with a perforated nose portion (11), a piston (3) disposed within the casing, and a marking substance (4) disposed forwardly of the piston. The piston (3) is movable forwardly under force applied to it by gas used to discharge the projectile. The marking substance (4) is thereby compressed and expelled through the nose portion for contact with a target.

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TARGET MARKING BULLET

It is known to issue security forces with marking bullets which may be fired at selected persons in a crowd of rioters, for example, in order to mark them with an indelible dye. Such bullets may also be used for training purposes, when they may be fired at persons taking part in training exercises, or at targets.

The known marking bullets are so formed as to burst when they strike a medium hard surface at an impact force of less than 3 ft/lbs. Because of their nature, the known marking bullets must be handled carefully and are not suited for use in weapons which re-load automatically.

The marking bullet proposed herein overcomes this problem and is capable of accepting a degree of rough handling and, in particular, of being used in automatic weapons.

In the drawing:

Figure 1 is a longitudinal section through the proposed bullet taken on the line I-I in Figure 2, and

Figure 2 is an end view looking in the direction of arrow II in Figure 1.

Referring to the drawings, the proposed marking bullet comprises a hollow case formed from an outer shell 1 and insert 2. The shell 1 has a dome shaped nose portion 11 from which a cylindrical sleeve 12 extends rearwardly. The insert has a mid-portion 21 which is fitted tightly within the sleeve 12, a shoulder portion 22 which abuts against the rearward edge of the sleeve 12, and a

smaller diameter spigot 23 projecting forwardly from the mid-portion. Slidably fitted onto the spigot is a piston 3 which has a domed head generally complementary in shape to the inner side of the dome shaped nose portion 11.

The nose portion 11 has an array of slots 5 extending radially from a central hub portion 6 and contains a dye formed by a mass 4 of spreadable, semi-solid material, which may have a gelatinous, greasy or pasty consistency, and be in the nature of the material used to form conventional lipstick.

Extending through the insert 2 is an axial bore 7 to enable the bullet to be mounted on a spigot projecting from a suitably adapted cartridge. Alternatively the bullet may be held in place by the rim of the cartridge in the conventional way, but will nevertheless be provided with a bore connecting the rear face of the piston to atmosphere at the trailing end of the bullet. Upon firing, the gas serving to propel the bullet from the barrel of a weapon penetrates through the bore 7 and drives the piston 3 forwards to nest within the nose 11. The piston thereby expels the dye through the slots 5. The exterior of the nose 11 is thereby covered in a layer or film of dye which applies itself to the target when the latter is struck by the bullet.

The case of the bullet is formed from a light weight material such as hard plastic, aluminum or magnesium alloy. The material which is used should allow a bullet to be manufactured which is strong enough to withstand rough handling and automatic cycling but light enough to impact on the target at below 3 ft/lbs impact force. The dye carried by the bullet does not come into contact

with the hands of personnel or with gun mechanisms during handling and loading, but is made to coat the exterior of the nose 11 by the time the bullet has been ejected from the weapon. Because the nose 11 has a
5 smooth outer surface on which the dye may form a thin, easily removable greasy coating, the bullet will mark anything that it touches, even at low impact forces or with a glancing blow.

10 The nose 11 may be formed with a single slot, or with one or more openings other than slots, or may have a mesh-like structure.

It falls within the scope of the invention for the
15 insert 2 to be omitted, provided that the piston is retained within the case in such a way that it will not part from the case during flight. The bullet may be used in conjunction with conventional pyrotechnic or gas cartridges. It is, however, within the scope of the
20 invention for the bullet to be propelled from guns in which a projectile is discharged by air or gas pressure without the use of a cartridge.

CLAIMS

1. A projectile having a hollow casing perforated at its forward end and containing a marking substance, and means for applying pressure to the substance to expel it through the casing for contact with a target.
2. A projectile having a hollow casing with a perforated nose portion, a piston disposed within the casing, a marking substance disposed forwardly of the piston, the piston being movable forwardly under force applied to the piston by gas used to discharge the projectile, thereby to compress the substance and expel it through the nose portion for contact with a target.
3. A projectile as claimed in claim 2, wherein the piston has a generally domed surface, and the inner face of the nose portion is substantially complementary in shape to the domed surface of the piston.
4. A projectile as claimed in claim 2 or claim 3, wherein the nose portion is perforated by radially extending slots.
5. A projectile as claimed in any of claims 2 to 4, wherein the piston is slidable on a spigot extending forwardly from an insert fitted into the rear end of the casing.
6. A projectile as claimed in claim 5, wherein the insert has an axial bore extending therethrough, and opening to a rear surface of the piston.
7. A projectile comprising a hollow casing having a perforated nose portion, an insert within the rear end

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of the casing, a piston disposed between the insert and the nose portion, the insert having a bore extending therethrough, and a marking substance disposed in a chamber defined between the piston and nose portion.

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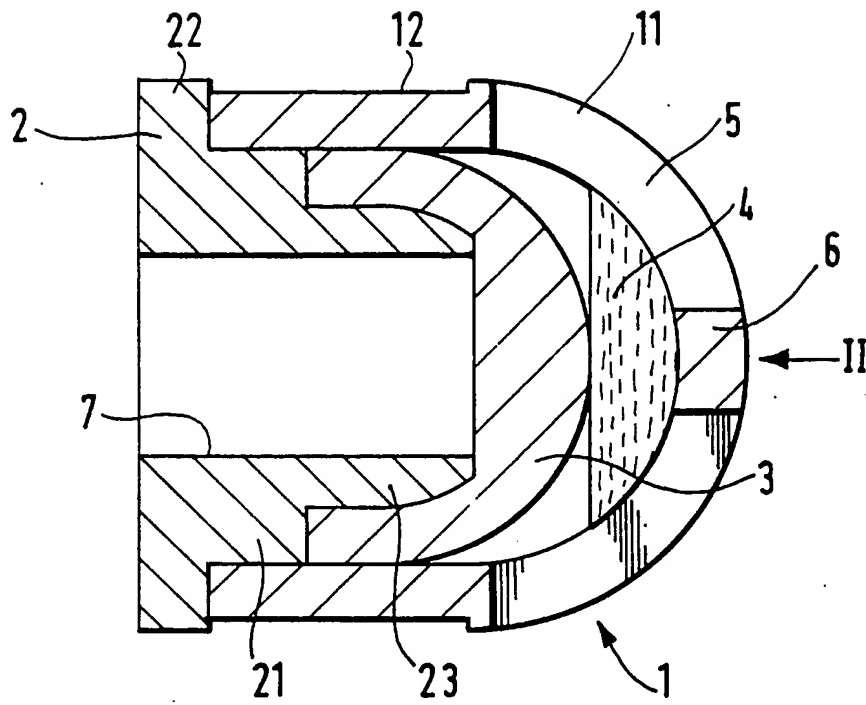


FIG. 1.

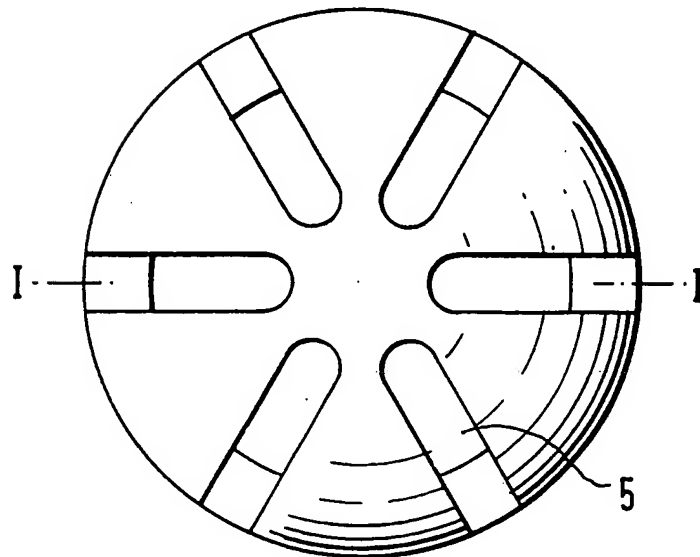


FIG. 2.

SUBSTITUTE SHEET (RULE 26)

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 94/02578

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 F42B12/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 F42B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,3 782 286 (K.W. JONES) 1 January 1974 see column 3, line 56-60; figures 9-11 ---	1
X	US,A,4 128 059 (W. BLACK) 5 December 1978 see column 2, line 23-49; figure 1 ---	1
A	---	2
X	US,H,H114 (R. QUINTAVALLE) 5 August 1986 see column 2, line 60 - column 3, line 23; figure 1 see column 4, line 14-24 ---	1
X	GB,A,1 263 522 (W. FOGES) 9 February 1972 see page 2, line 9-18; figure 2 ---	1,2
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☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,3 528 662 (J. MERCHANT) 15 September 1970 see column 2, line 60 - column 3, line 31; figures 1-4	1
X	US,A,5 018 449 (E. EIDSON) 28 May 1991 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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US-H-H114	05-08-86	NONE	
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US-A-5018449	28-05-91	NONE	